



X-Plain™

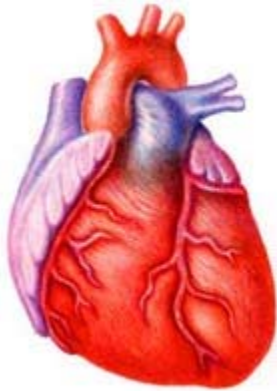
Congestive Heart Failure

Reference Summary

Congestive heart failure is a common condition that affects about 5 million Americans every year. About 20% of hospitalized patients who are 65 or older have heart failure.

It is possible to control this disease of the heart. If not successfully controlled, heart failure can cause serious disability and death.

This reference summary explains what congestive heart failure is and how to control it.



The Heart

The heart is responsible for pumping blood to all the organs in the body. It is a highly specialized muscle that is expected to work continuously, without rest, for a lifetime!

The heart has a right and a left side. Each side has 2 chambers: the atrium and the ventricle. Special valves divide the chambers and prevent blood from flowing backward.

Blood loaded with oxygen comes from the lungs and enters the left atrium. It stays there until the mitral valve opens up and the atrium contracts.

This forces the blood into the left ventricle. The blood is then pumped to the rest of the body through the aortic valve into the biggest blood vessel of the body, the aorta.

After the blood comes back from circulating through the body, it goes into the right atrium. From there, it is pumped into the right ventricle through the tricuspid valve and then to the lung through the pulmonic valve.

In the lung, the blood picks up oxygen and returns to the left atrium, where the whole cycle starts again.

The heart needs a continuous supply of oxygen and sugar to be able to function. Oxygen-rich blood is delivered to the heart through the coronary arteries. These arteries branch off from the aorta.

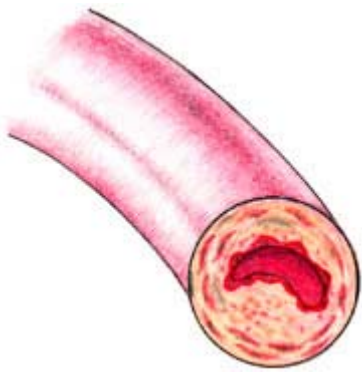
The heart contracts automatically in a very coordinated way. Special cells in the atrium set off an electric current needed to cause the atrium to contract.

The electric current spreads to the ventricles through specialized cells. This causes the ventricles to contract after the atria.

Heart Failure

Heart failure is a condition where the heart is not able to pump blood to the rest of the body at a normal rate. A healthy heart pumps 50% of the blood it receives in one beat; a failing heart pumps only 40% of the blood it receives in one beat.

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When the heart cannot pump all the blood it receives, excess fluid could back up into the lungs and other parts of the body.

The lack of blood being supplied to the body in addition to the buildup of fluids causes symptoms of heart failure. When fluids collect in the lungs, it is called congestion. That is why this disease is called congestive heart failure.

There are several levels of congestive heart failure:

- Mild
- Average
- Severe
- Very severe.

Symptoms

One of the first signs of heart failure is sudden weight gain due to the accumulation of fluid in the feet, ankles, and legs.

People with heart failure may feel excessively tired and short of breath when doing things that are normally easy, such as climbing stairs. As heart failure gets worse, a person becomes completely disabled, unable to walk or even to move around the house.

Fluids may accumulate in the upper body, such as in the lungs and abdomen. People with heart failure will feel short of breath as fluid builds up in the

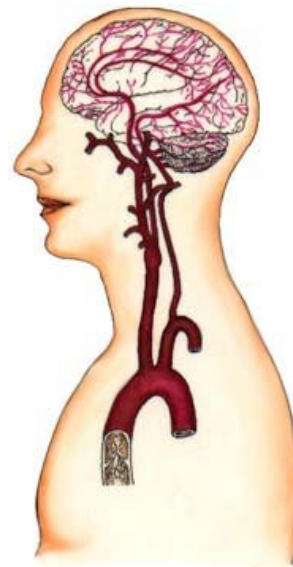
lungs. If this happens during the night, the person may wake up with a choking feeling.

People suffering from heart failure usually have difficulty lying flat in bed. They may need to sleep with their head raised up on several pillows.

As fluid accumulates in the lungs, congestive heart failure patients typically develop a persistent cough that may include mucus or blood.

If not controlled, congestive heart failure can be very debilitating, causing the patient to feel tired after very simple activities, such as walking or eating.

As fluid continues to accumulate in the lungs, the chances of having a heart attack also increase.



Causes

Heart failure can happen at any age, but it is more common in older people. As we age, our heart becomes a little weaker and the blood vessels get narrower.

In children, abnormalities in the heart are the most common cause of heart failure. Abnormal openings between the right and the left side of the heart can

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lead to heart failure by increasing the amount of work the heart must do.

Heart valve diseases can also cause heart failure. The blood may leak back through a defective valve, causing the heart to work harder and blood and fluids to collect in the lungs.

Hypertension, or high blood pressure, increases the workload of the heart over time. This can lead to heart failure, as well.

Coronary artery disease can cause heart failure. Coronary artery disease develops when fatty materials deposit in the coronary arteries. This causes the blood vessels of the heart to become narrow and clogged.

The first sign of coronary artery disease is chest pain called angina. If an artery becomes completely blocked and the blood supply to an area of the heart stops, a heart attack occurs.

Heart attacks commonly cause heart failure. After a heart attack, a section of the heart may no longer work. This causes the heart to pump less, which in turn may lead to congestive heart failure.

In some cases, the heart gets infected or inflamed; this causes it to weaken, a condition called cardiomyopathy. This may also result in congestive heart failure.

Other causes of heart failure include

- Diabetes
- Cancer treatment, radiation and some chemotherapy drugs
- Thyroid diseases, too much or too little thyroid hormones
- Alcohol abuse
- Cocaine and other illegal drug use

- HIV/AIDS

Heart failure can happen to anyone, but it is more common in

- People 65 years of age and older
- African Americans
- Males

Diagnosis

[To diagnose heart failure, the doctor must take a health history. He or she will ask questions such as:

- What do you feel and when did these signs start?
- What other health problems do you have and how are they being treated?
- Have any family members had heart problems? What type of problems?

Other questions your doctor will ask include:

- What is your daily life like (eating, working, sleeping)?
- What are your health habits (exercise, diet, smoking, alcohol, illegal drugs)?

It is important to be very honest when answering this kind of questions.

The doctor will do a physical exam and may request a chest x-ray. In addition, a heart tracing, called an EKG, and a heart-imaging test, called an echocardiogram, may be necessary.

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These tests could be done after asking the patient to perform some physical activities. They are then called stress tests.

A long term EKG also known as Holter monitor may be done to see if there are any heartbeat irregularities.

Blood tests to check for your thyroid hormone levels, sugar levels etc may be done.

More detailed heart imaging studies may be done, such as cardiac catheterization, where a dye is injected in the heart to check for the arteries of the heart, the valves, and the function of the cardiac muscles.

Other types of scans include a cardiac blood pool scan, where a radioactive material is used to check for the amount of blood the heart is actually pumping.

Treatment Options

The treatment for heart failure depends on several factors, such as:

- The cause of it
- How severe it is
- The health condition of the patient.

Once in awhile, heart failure is due to specific abnormalities in the heart valves or the heart itself. Surgery to replace a valve or close a hole between

the heart chambers might be able to cure heart failure.

For most patients, however, heart failure cannot be cured; only managed through medication and changes in lifestyle.

Lifestyle changes, such as resting in order to bring the blood pressure to a normal level, may help to reduce the amount of work that the heart must do.

For patients with heart failure that is a result of blocked coronary arteries, opening or bypassing the arteries may provide enough relief to the heart.

When congestive heart failure is extremely severe, a heart transplant may be a last resort for patients who can handle such surgery.

Medications

If medication is prescribed for congestive heart failure, it is specific to the patient's symptoms, level of heart failure, and health condition. Several types of medicine are available for the doctor to choose from.

The doctor may start with one medicine and then add others later in order to find out the right medication combination.

A patient should tell their doctor about any medication they are currently taking, including non-prescription medicines.



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This way, he or she can ensure that the best combination of medication is prescribed to treat the heart failure.

The doctor will explain the possible side effects of the prescribed medication. The doctor should be notified if any side effects are noticed.

There are 3 different kinds of medicines available to treat heart failure. These medications are taken by mouth.

One kind of heart failure medicine makes it easier for the heart to pump by relaxing, or dilating, the blood vessels of the body. These drugs are called vasodilators.

The following are some of the available vasodilators:

- Captopril
- Enalapril
- Hydralazine

Side effects of vasodilators include:

- Dizziness
- Light-headedness
- Skin rashes.

A second kind of heart failure medication helps remove excess fluid and salt from the body. These drugs are called diuretics. When taking diuretics, the patient should eat more food rich in potassium such as bananas, orange juice, and raisins.

Some kinds of diuretics include:

- Furosemide
- Thiazide

- Hydrochlorothiazide.

Side effects of diuretics include:

- Dizziness
- Accidental urine leakage
- Skin rash
- Leg cramps
- A type of arthritis called gout.

A third kind of heart failure medicine helps to strengthen the heartbeat, allowing the heart to pump more blood. These drugs are called digitalis. The doctor adjusts the dosage for each patient. Too much digitalis in the body can cause nausea, blurred vision, confusion, fast heartbeats, and loss of appetite.

Recent studies have discovered the benefits of intravenous, or IV, medications, especially one called dobutamine. IV medication is given intravenously, through a catheter that is inserted into a vein. These medications are given in cases of severe heart failure and work by strengthening the heart.

Patients who will be taking IV medications usually have a special IV or “port” inserted surgically. Through that port, they can take the IV medication at home or in an outpatient setting. Dobutamine can be given continuously or a few times a week.



Lifestyle Changes

The following 10 healthy life habits help control heart failure. If you don't have heart failure, these habits will help you to prevent congestive heart failure.

- Do not eat very much salt.
Salt causes fluid to build up in the body. By reducing the amount of salt that you eat, you can reduce swelling and fluid buildup in the lungs. Frozen foods, canned foods and processed meats contain a lot of salt.
- Be physically active.
Try to be as active as possible, but stay within what your health condition allows. Talk to your doctor about the type of activities you can do. Heart failure usually affects the ideal level of activity for most patients.
- Lose weight if you are overweight.
- Eat a healthy, balanced diet that is rich in fiber and low in fat.
- Check your blood pressure regularly.
If it is high, keep it under control by avoiding

foods that are high in salt and taking prescribed medication.

- Do not smoke.
- Check your cholesterol and blood sugar levels.
If either is high, get it under control with a healthy diet and possibly medication.
- Do not use illegal drugs and avoid alcohol.
Try to reduce alcohol consumption to one drink per day or eliminate it altogether.
- Get enough sleep at night and rest frequently.
- Manage stress in your life.

Summary

Heart failure is a serious disease that affects millions of Americans. If not controlled, it can progress, leading to disability and sometimes death.

Thanks to advances in medicine, healthcare providers can help patients control heart failure. For most patients, treatment consists of medications and adopting healthier life habits.

For a lot of patients, taking daily medication is important in controlling heart failure. Medication should be taken as prescribed and any side effects should be reported immediately to the doctor.

Your healthcare providers are available to help you select lifestyle changes that fit your needs. You can also seek the support of family and friends to help you adjust to the changes.

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